

Applied Aquatic Ecology

Arthur Rylah Institute for Environmental Research

Summer 2015 Update

About Us

The Applied Aquatic Ecology group aims to generate and share knowledge, through world-class, applied, ecological research, which supports and guides sustainable ecosystem policy and management to ensure healthy, resilient ecosystems. We work collaboratively with national, state and local agencies, research institutes, universities, interest groups and the community.

Highlights

1. Surveys in Sevens Creek have found good abundance of Macquarie Perch and Trout Cod, with successful recruitment of both species in recent years. Removal of Redfin and Carp has been occurring in this creek (A **VEPP - Victorian Environmental Partnerships Program** project).
2. ARI has aged the **oldest known Australian Bass** at 39 years of age, from the Snowy River, using otolith (ear bone) measurements.
3. An assessment of a population of the Glenelg Freshwater Mussel in south west Victoria has found that while it has contracted to the lower reaches of one stream, there is recent evidence of the species in two adjacent streams (A **VEPP - Victorian Environmental Partnerships Program** project).
4. **Population models** for 7 native fish species in the MDB are to be developed by ARI, to estimate the response of populations to flow management. These models will help annual and long term planning at both Basin and regional scales.
5. ARI is involved in a **Wild Trout Fisheries Management Program** for Fisheries Victoria. An acoustic tracking study of trout aims to better understand the species' response to warmer water temperatures in summer. Other components include an assessment of fishing pressure in the Howqua River, and the effectiveness of fish stocking to enhance wild trout populations. A literature review is also being undertaken on riparian vegetation and aquatic invertebrates.
6. ARI has commenced 3 **wetland research projects** for Water and Catchments Group in DELWP. These include predictive mapping of critically endangered seasonal herbaceous wetlands, the effectiveness of invasive species management in wetlands, and the recovery potential of wetland vegetation.

Outputs

8 published & accepted journal articles (Australian Zoologist, Canadian Journal of Fisheries & Aquatic Science, Freshwater Biology, Memoirs of the Museum of Victoria, Restoration Ecology, Ecological Management and Restoration).



Influencing change

- ARI is tracking Bream in West Gippsland rivers to understand the effects of the **environmental water releases** on the species' breeding cycle. This will help to determine strategies to bolster Bream stocks.
- The Snowy River Environmental Flow Monitoring and Investigation Project aims to understand the effects of the existing flow regime on the ecological condition of the river. This can help inform development of **environmental flow recommendations**. So far, a comparison of years in which spawning and recruitment of Australian Bass occurred suggests higher magnitude flows in early spring are important.
- ARI has provided expert advice on **risk mitigation and species management** for burrowing crayfish and stream dwelling amphipods regarding location of underground power infrastructure for AusNet.

Knowledge transfer and engagement

Conferences and Seminars:

- Global inland fisheries conference (Food and Agriculture Organisation of the United Nations) in Rome (Dr John Koehn)
- ARI Snapshot seminars (4 scientists presented)

Meetings and stakeholder and community group - presentations and participation:

- GBCMA workshop - Management of threatened species in the mid-Goulburn River using Macquarie Perch as a flagship species.
- EGCMA workshop - Snowy River Environmental Flow Monitoring and Investigation Project
- NCCMA meeting to develop environmental watering guidelines
- Over 100 recreational fishers and local community members participated in five fish habitat hotspot events held across coastal Victoria. Participants learnt about fish, their habitats and local actions to improve waterway condition.
- Macquarie Perch talk at State Wide Information Flora and Fauna Teams (SWIFFT)